

What is claimed is:

1. A data conversion method for displaying an image, comprising conversion of original frame data indicating gradation of a pixel into display frame data defining a light emission timing of a display element in a display frame period, the conversion including the steps of;

determining a light emission waveform in accordance with display frame data of plural frames containing the current frame and the previous frame;

performing Fourier expansion of an error between the determined light emission waveform and a target light emission waveform defined by the original frame data corresponding to the determined light emission waveform;

and

setting the display frame data of the current frame so that a sum of error components with weights that are obtained by weighting each Fourier component.

2. The data conversion method according to claim 1, wherein the weight of each Fourier component is set individually for each light emission color of a display element.

3. The data conversion method according to claim 1, wherein the weight of Fourier component of a frequency above a flicker frequency is set to "0".

4. The data conversion method according to claim 1, wherein the display frame period is different from the original frame period.

5. The data conversion method according to claim 4, wherein the Fourier expansion is performed for each time

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range having a unit of the display frame period.

6. The data conversion method according to claim 4, wherein the Fourier expansion is performed for each time range having a unit of the original frame period.

5 7. The data conversion method according to claim 1, wherein the target light emission waveform is an interpolation waveform obtained by linear approximation of a transition of discrete target light emission values in each original frame.

10 8. A data conversion method for displaying an image, comprising conversion of original frame data indicating gradation of a pixel into display frame data defining a light emission timing of a display element in a display frame period, the conversion including the steps of;

15 performing Fourier expansion of an error between a gradation waveform indicating a transition of gradation to be displayed and a target gradation waveform, an error with weight obtained by setting weight to each Fourier component being small;

20 performing Fourier expansion of an error between a gradation waveform indicating a gradation transition defined by display frame data of plural frames containing the current frame and the previous frame and a target gradation waveform defined by original frame data

25 corresponding to the gradation waveform; and

setting the display frame data of the current frame so that a sum of error components with weight that are obtained by weighting each Fourier component

9. The data conversion method according to claim 8,
30 wherein the weight of each Fourier component is set

individually for each light emission color of a display element.

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5 10. The data conversion method according to claim 8, wherein the weight of Fourier component of a frequency above a flicker frequency is set to "0".

11. The data conversion method according to claim 8, wherein the display frame period is different from the original frame period.

10 12. The data conversion method according to claim 11, wherein the Fourier expansion is performed for each time range having a unit of the display frame period.

13. The data conversion method according to claim 11, wherein the Fourier expansion is performed for each time range having a unit of the original frame period.

15 14. The data conversion method according to claim 8, wherein the target gradation waveform is an interpolation waveform obtained by linear approximation of a transition of discrete target gradation values in each original frame.

20 15. A display device expressing gradation of original frame data by controlling a light emission timing of a display element in accordance with display frame data, the device comprising:

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an original frame memory for memorizing original frame data of at least one frame;

25 a display frame memory for memorizing display frame data of at least one frame;

a data converting circuit for outputting data corresponding to an input data value as display frame data of the n-th frame, responding to an input of original frame data of the n-th frame, original frame data of at least (n-

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1)th frame from the original frame memory and display frame
data of at least (n-1)th frame from the display frame
memory, wherein the display frame data outputted by the
data converting circuit are prepared by the data conversion
5 method of claim 1.

16. A display device expressing gradation of original
frame data by controlling a light emission timing of a
display element in accordance with display frame data, the
device comprising:

10 an original frame memory for memorizing original frame
data of at least one frame;

a display frame memory for memorizing display frame
data of at least one frame;

a data converting circuit for outputting data
15 corresponding to an input data value as display frame data
of the n-th frame, responding to an input of original frame
data of the n-th frame, original frame data of at least (n-
1)th frame from the original frame memory and display frame
data of at least (n-1)th frame from the display frame
20 memory, wherein the display frame data outputted by the
data converting circuit are prepared by the data conversion
method of claim 8.

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